

The First Workshop on Asynchrony in the PGAS Programming Model

<http://www.research.ihost.com/apgas09>

June 8, 2009

Collocated with ICS 2009 (<http://www.ics-conference.org>)

Call for Papers

The new golden era of concurrency offers a diversity of concurrent architectures to the application programmer – clusters of symmetric multiprocessors, heterogeneous accelerators (such as the Cell, GPGPUs), large core-count integrated machines (such as the Blue Gene), and multiple levels of parallelism (multithreaded multicores, such the newer Power architectures, or distributed multiprocessors like the Cray MTA). The central programming challenge for these new architectures is to develop a suitable and robust programming model. The Partitioned Global Address Space (PGAS) model has attracted considerable attention as such a programming model, particularly in the High Performance Computing space. Several research groups have recently started to investigate asynchronous execution in the PGAS model. Asynchronous execution is the foundation for active message programming, and fine-grained concurrency (e.g. Cilk-style fork-join, OpenMP style teams). It is also the basis for data transfer between non-coherent memories (DMA), remote atomic operations, and in general for techniques for overlapping computation and communication. Finally, asynchronous execution offers a simple model for spawning massive multi-threaded kernel computations on accelerators such as GPUs.

Authors are invited to submit a 10 page paper in the Lecture Notes in Computer Science format (<ftp://ftp.springer.de/pub/tex/latex/llncs/latex2e/llncs2e.zip>) for consideration for the workshop. Topics of interest are summarized below, with more details on the workshop's web site.

- Programming models: determinacy, concurrency, and asynchrony
- Language design: new and existing languages to support the asynchronous PGAS model, language interoperability, and type systems in the PGAS context, language extensions to address heterogeneity
- Compilation issues: code generation, concurrency optimizations and compilation for heterogeneous architectures
- Runtime: algorithmic scheduling and auto-tuning for PGAS
- Debugging: scalability and challenges for asynchronous debugging
- Libraries and interoperability of PGAS implementations with other parallel programming models.

Submission deadline	Notification of Acceptance	Final copy due
April 27, 2009	May 4, 2009	May 25, 2009
Paper submission:	Electronically from http://research.ihost.com/apgas09	

Organizing committee:

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